Claims

1. In combination:

a fluoropolymer matrix having particles distributed therein; and

a thermosetting resin.

2. The combination of claim 1, further comprising a metal layer contacting the fluoropolymer matrix.

3. The combination of claim 1, wherein the fluoropolymer matrix is nonfibrillated.

4. The combination of claim 1, wherein the fluoropolymer matrix is polytetrafluoroethylene.

5. The combination of claim 1, wherein the thermosetting resin includes a contrasting dye and inorganic fillers.

6. The combination of claim 1, wherein the thermosetting resin is selected from the group consisting of cycloaliphatic type epoxies, digycidyl ethers of bisphenol A, cresol novolaks, phenolic epoxies, bismaleimides,

polyimides, bismaleimides-triazine epoxies, and cyanate ester-epoxy mixtures.

7. The combination of claim 1, wherein the thermosetting resin is impregnated into the fluoropolymer matrix.

8. The combination of claim 1, wherein the particles in the fluoropolymer matrix are inorganic.

9. The combination of claim 1, wherein the particles comprise about 15 to about 95 percent of a volume of the fluoropolymer matrix.

10. The combination of claim 1, wherein the particles have a diameter of less that 10 μm.

11. The combination of claim 1, wherein the thermosetting resin includes inorganic particles.

12. A device, comprising:

a conductive layer;

a polytetrafluoroethylene matrix, containing particles therein, overlaying the conductive layer; and

a thermosetting resin, for bonding the conductive layer to the polytetrafluoroethylene matrix.

13. The device of claim 12, wherein the polytetrafluoroethylene matrix is nonfibrillated.

14. The device of claim 12, wherein the thermosetting resin is impregnated into the polytetrafluoroethylene matrix.

15. The device of claim 12 wherein the thermosetting resin is coated onto the conductive layer.

16. The device of claim 12 wherein the thermosetting resin is coated onto the polytetrafluoroethylene matrix.

17. The device of claim 12, wherein the conductive layer is copper.

18. The device of claim 12, wherein the thermosetting resin

is provided in a sheet positionable between the conductive layer and the polytetrafluoroethylene matrix.

19. The device of claim 12, wherein the particles in the polytetrafluoroethylene matrix are inorganic particles.

20. The device of claim 12, wherein the thermosetting resin includes inorganic particles.

21. The device of claim 12, wherein the device is a printed circuit board.

22. The device of claim 12, wherein the device is a chip carrier.

23. A method for forming a device, comprising the following steps:

providing a fluoropolymer matrix having particles therein;

providing a thermosetting resin; and

laminating the fluoropolymer matrix to a conductor using the thermosetting resin.

24. The method of claim 23, wherein the fluoropolymer matrix is nonfibrillated polytetrafluoroethylene.

25. The method of claim 23, wherein the particles are inorganic particles.

26. The method of claim 23, wherein the thermosetting resin is impregnated into the fluoropolymer matrix.

27. The method of claim 23, wherein the thermosetting resin is coated onto the conductor.

28. The method of claim 23, wherein the thermosetting resin is coated onto the fluoropolymer matrix.

29. The method of claim 23, wherein the conductor is copper.

30. The method of claim 23, wherein the thermosetting resin is provided in a sheet that is positioned between the fluoropolymer matrix and the conductor.

31. The method of claim 23, wherein the thermosetting resin includes a contrasting dye.

32. The method of claim 23, wherein the device is a printed circuit board.

33. The device of claim 23, wherein the device is a chip carrier.

34. A method for forming a device, comprising the following steps:

providing a fluoropolymer matrix having particles therein;

coating the fluoropolymer matrix with a thermosetting resin; and

laminating the coated fluoropolymer matrix to a conductor.

35. The method of claim 34, wherein the thermosetting resin includes solvent.

36. The method of claim 35, further comprising the step of heating the coated fluoropolymer matrix to remove the solvent from the thermosetting resin, prior to the laminating step.

37. The method of claim 34, further comprising the step of subjecting the fluoropolymer matrix to a plasma process, prior to the coating step.

38. The method of claim 34, wherein the fluoropolymer matrix is a nonfibrillated polytetrafluoroethylene.

39. The method of claim 34, wherein the thermosetting resin contains about 30-75 percent solids.

40. The method of claim 34, wherein the laminating step comprises applying heat and pressure.

41. The method of claim 40, wherein the heat is applied to about 120-250° C during the laminating step.

42. The method of claim 40, wherein the pressure is applied to about 100-700 PSI during the laminating step.

43. The method of claim 34, wherein the fluoropolymer matrix is impregnated with the thermosetting resin, prior to the providing step.

44. The method of claim 34, wherein the conductor is copper.

45. The method of claim 34, further comprising the steps of:

coating the conductor with the thermosetting resin, prior to the laminating step; and

heating the coated conductor to remove the solvent from the thermosetting resin.